

# MEMORY ARCHITECTURE FOR MICROMIRROR CELL

## ABSTRACT

5 A one transistor one capacitor micromirror with DRAM  
memory cell built around a large polysilicon-to-substrate  
capacitor which is not susceptible to recombination of  
photo-generated carriers caused by illumination in the  
projector. This large polysilicon-to-substrate capacitor  
overshadows the much smaller inherent parallel depletion  
capacitance which is sensitive to light. The device is  
10 further 100% shielded from exposed light by metal layers  
and the address node is located under the center of the  
micromirror mirror to obtain maximum shielding of light  
for the smaller, light sensitive, depletion portion of  
the capacitance. As a result the micromirror of this  
15 invention can adequately hold the cell charge in excess  
of the device load time of 300  $\mu$ Sec even in extremely  
high brightness projector applications. This invention  
also provides a feature which automatically forces  
micromirror mirrors located over bad CMOS memory cell to  
20 the dark state, which is much less objectionable in most  
applications, thereby improving the overall effective  
processing yield.